INITIAL STUDY

BACKGROUND

Project Title: Grey Eagle Mine Reclamation Project

Project Description: The proposed project consists of pumping lime slurry into the historical mine workings as part of the water treatment program. This action is expected to reduce the production of acid waters and coincident solubilization of metals, primarily copper, that is occurring in the historical mine workings. This will reduce the need for continued operation of a water treatment plant located in the South Fork of Luther Gulch and allow for a more passive closure program. Proposed is the construction of one or two holes into the lower mine stopes along with one or two holes into the upper most mine stopes. Mine water will be withdrawn from the lower stopes, mixed with lime, and then pumped back into the upper levels of the mine. The lime will neutralize the acidic waters and produce metal hydroxide precipitates which will coat the sulfide minerals as well as settle into the flow pathways. This is expected to reduce the release of metals to the mine waters and the flow of groundwater through the mine. South Fork of Luther Gulch Creek is a tributary of Luther Gulch Creek, which is a tributary of Indian Creek. which is a tributary of the Klamath River.

Proponents: Noranda Grey Eagle Mines Inc.; 1000 Luther Gulch Road; Happy Camp, CA 96039

and

Siskon Gold Corporation; 10556 Combie Road, Suite 6206; Auburn, CA 95602

Lead Agency: Regional Water Quality Control Board, North Coast Region; 5550 Skylane Boulevard, Suite A; Santa Rosa, California 95403

Environmental Factors:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
I. LAND USE AND PLANNING. Would the proposal:				
a) Conflict with general plan designation or zoning?	_____	_____	_____	__X__
b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	_____	_____	_____	__X__
c) Be incompatible with existing land use in the vicinity?	_____	_____	_____	__X__
d) Affect agricultural resources or operations (e.g. impacts to soils or farmlands or impacts from incompatible land uses)?	_____	_____	_____	__X__
e) Disrupt or divide the physical arrangement or an established community (including a low-income or minority community)?	_____	_____	_____	__X__
II. POPULATION AND HOUSING. Would the proposal:				
a) Cumulatively exceed official regional or local population projections?	_____	_____	_____	__X__
b) Induce substantial growth in an area either directly or indirectly (e.g. through projects in an undeveloped area or extension of major infrastructure)?	_____	_____	_____	__X__
c) Displace existing housing, especially affordable housing?	_____	_____	_____	__X__
III. GEOLOGICAL PROBLEMS. Would the proposal result in or expose people to potential impacts involving:				
a) Fault Rupture?	_____	_____	_____	__X__
b) Seismic ground shaking?	_____	_____	_____	__X__
c) Seismic Ground failure, including liquefaction?	_____	_____	_____	__X__
d) Seiche, tsunami, or volcanic hazard?	_____	_____	_____	__X__
e) Landslides or mudflows?	_____	_____	_____	__X__
f) Erosion, changes in topography or unstable soil conditions from excavation, grading, or fill?	_____	_____	_____	__X__
g) Subsidence of the land?	_____	_____	_____	__X__
h) Expansive soils?	_____	_____	_____	__X__

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i) Unique geological or physical features?	_____	_____	_____	__X__
IV. WATER. Would the proposal result in:				
a) Changes in the absorption rates, drainage patterns, or the rate and amount of surface runoff?	_____	_____	_____	__X__
b) Exposure of people or property to water related hazards such as flooding?	_____	_____	_____	__X__
c) Discharge into surface waters or other alterations of surface water quality, e.g. temperature, dissolved oxygen, or turbidity)?	_____	_____	_____	__X__
d) Changes in the amount of surface water in any water body?	_____	_____	_____	__X__
e) Changes in currents, or the course or direction or water movements?	_____	_____	__X___	___ __
f) Changes in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of groundwater recharge capability?	_____	_____	_____	__X__
g) Altered direction or rate of flow of groundwater?	_____	_____	__X___	__ ___
h) Impacts to groundwater quality?	_____	_____	__X__	_____
i) Substantial reduction in the amount of groundwater otherwise available for public water supplies?	_____	_____	_____	__X__
V. AIR QUALITY. Would the proposal:				
a) Violate any air quality standard or contribute to an existing or projected air quality violation?	_____	_____	_____	__X__
b) Expose sensitive receptors to pollutants?	_____	_____	_____	__X__
c) Alter air movement, moisture, or temperature, or cause any change in climate?	_____	_____	_____	__X__
d) Create objectionable odors?	_____	_____	_____	__X__

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VI. TRANSPORTATION/CIRCULATION. Would the proposal result in:				
a) Increased vehicle trips or traffic congestion?	_____	_____	__X__	_____
b) Hazards to safety from design features (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	_____	_____	_____	__X__
c) Inadequate emergency-access or access to nearby uses?	_____	_____	_____	__X__
d) Insufficient parking capacity on-site or off-site?	_____	_____	_____	__X__
e) Hazards or barriers for pedestrians or bicyclists?	_____	_____	_____	__X__
f) Conflicts with adopted policies supporting alternative transportation (e.g. bus turnouts, bicycle racks?	_____	_____	_____	__X__
g) Rail, waterborne or air traffic impacts?	_____	_____	_____	__X__
VII. BIOLOGICAL RESOURCES Would the proposal result in impacts to:				
a) Endangered, threatened or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)?	_____	_____	_____	__X__
b) Locally designated species (e.g. heritage trees)?	_____	_____	_____	__X__
c) Locally designated natural communities (e.g. oak forest, coastal habitat, etc.)?	_____	_____	_____	__X__
d) Wetland habitat (e.g. marsh, riparian and vernal pool)?	_____	_____	_____	__X__
e) Wildlife dispersal or migration corridors?	_____	_____	_____	__X__
VIII. ENERGY AND MINERAL RESOURCES. Would the proposal:				
a) Conflict with adopted energy conservation plans?	_____	_____	_____	__X__
b) Use non-renewable resources in a wasteful and insufficient manner?	_____	_____	_____	__X__

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c) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the state?	_____	_____	_____	__X__

IX. HAZARDS. Would the proposal involve:

a) A risk of accidental explosion or releases of hazardous substances (including, but not limited to: oil, pesticides, chemicals, or radiation.	_____	_____	_____	__X__
b) Possible interference with an emergency response plan or emergency evacuation plan?	_____	_____	_____	__X__
c) The creation of any health hazard or potential health hazard	_____	_____	_____	__X__
d) Exposure of people to existing sources of potential health hazard?	_____	_____	_____	__X__
e) Increased fire hazard in areas with flammable brush, grass, or trees?	_____	_____	_____	__X__

X. NOISE. Would the proposal result in:

a) Increases in existing noise levels?	_____	_____	_____	__X__
b) Exposure of people to severe noise levels?	_____	_____	_____	__X__

XI. PUBLIC SERVICES. Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:

a) Fire Protection?	_____	_____	_____	__X__
b) Police Protection?	_____	_____	_____	__X__
c) Schools?	_____	_____	_____	__X__
d) Maintenance of public facilities, including roads?	_____	_____	_____	__X__
e) Other government services?	_____	_____	_____	__X__

XII. UTILITIES AND SERVICE SYSTEMS. Would the proposal result in a need for new systems or supplies, or substantial alterations to the following utilities:

a) Power or natural gas?	_____	_____	_____	__X__
b) Communication systems?	_____	_____	_____	__X__

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c) Local or regional water treatment or distribution facilities?	_____	_____	_____	__X__
d) Sewer or septic tanks?	_____	_____	_____	__X__
e) Storm water drainage?	_____	_____	_____	__X__
f) Solid Waste Disposal?	_____	_____	_____	__X__
g) Local or regional water supplies	_____	_____	_____	__X__

XIII. AESTHETICS. Would the proposal:

		-	-	-
a) Affect a scenic vista or scenic highway?	_____	_____	_____	__X__
b) Have a demonstrable negative aesthetic effect?	_____	_____	_____	__X__
c) Create light or glare?	_____	_____	_____	__X__

XIV. CULTURAL RESOURCES. Would the proposal:

	_____	_____	_____	__X__
a) Disturb paleontological resources?	_____	_____	_____	__X__
b) Disturb archeological resources?	_____	_____	_____	__X__
c) Affect historical resources?	_____	_____	_____	__X__
d) Have the potential to cause a physical change, which would affect unique ethnic cultural values?	_____	_____	_____	__X__
e) Restrict existing religious or sacred uses within the potential impact area?	_____	_____	_____	__X__

XV. RECREATION. Would the proposal:

a) Increase the demand for neighborhood or regional parks or other recreational facilities?	_____	_____	_____	__X__
b) Affect existing recreational opportunities?	_____	_____	_____	__X__

XVI. MANDATORY FINDINGS OF SIGNIFICANCE.

a) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	_____	_____	_____	__X__

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	_____	_____	_____	__X__
d) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	_____	_____	_____	__X__

Discussion of Environmental Factors

IVe. The proposed project consists of withdrawing water from the lower mine stopes, mixing that water with lime, and then pumping the lime slurry back into the upper levels of the mine. The lime will neutralize the acidic waters and produce metal hydroxide precipitates which will coat the sulfide minerals as well as settle into the flow pathways. Withdrawing of the water will be achieved by drilling a six-inch diameter cased well into the lower stopes of the mine and installing a 500 gallon-per-minute submersible pump. A second cased well will be constructed into the upper stopes where the treated waters will be pumped back into the mine. This will change the movement of groundwater through the Grey Eagle Mine in an effort to improve groundwater quality.

IVg. Groundwater from the Grey Eagle Mine will be withdrawn from the lower mine stopes, mixed with lime, and then pumped back into the upper levels of the mine. This will alter the rate of flow of the groundwater. As a result of pumping lime into the mine workings, the acidic waters will be neutralized and the production of (dissolution of) metals reduced. Precipitates will form reducing the mobility of dissolved metals; and these metal hydroxide complexes will coat the sulfide minerals to prevent further acid generation. Additionally, these precipitates will settle in the mine workings as well as into the flow paths that carry water from the stopes. There is a possibility that these precipitates might settle into the flow path between the upper stope, where the lime slurry is injected, and the lower stope, where water is withdrawn, and block the movement of water and lime slurry. An additional hole in each stope will allow water to be removed and lime injected within each stope should this occur.

IVh. Acid drainage and elevated metals in the South Fork of Luther Gulch existed prior to the development of the Noranda Grey Eagle Mine. Construction of the Noranda Tailings Dam and Impoundment covered most of the springs and seeps which had been issuing

low-pH waters with elevated metals into the South Fork of Luther Gulch. It is strongly believed that the historical mine workings are the primary source of acid waters and metal solubilization that manifests the water quality reporting to the seepage collection system at the base of the dam. The pH of the water in the mine has been measured at 2.25. Investigations have determined that placing lime into the historical mine workings could reduce or eliminate the production of acid waters and the liberation of metals from the host rocks. This would improve the groundwater quality flowing into the dam foundation, collected by the seepage collection system, and delivered to the water treatment plant.

VIa. It is estimated that 625 tons of lime will be required to neutralize the mine during the 100-day campaign. Lime will be delivered to the site in 20-ton trailers; therefore, approximately 32 loads of lime, or approximately one lime truck will be required every three days, for the operation. Highway 96 has been used extensively by logging trucks and trucks of similar capacity in the past; and the added traffic for this operation is not expected to have an adverse impact on the highway. Any impact will be within the 100-day period and can be considered short term.

Determination

On the basis of the evaluation:

I find that the proposed project COULD NOT have a significant effect on the Environment. A NEGATIVE DECLARATION will be prepared. __X__

I find that although the proposed project COULD have a significant effect on the environment, there WILL NOT BE a significant effect in this case because the mitigation measures described in this report have been incorporated into the proposed project. A NEGATIVE DECLARATION will be prepared. _____

I find that the proposed project MAY have a significant effect(s) on the environment but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a ”potentially significant impact” or “potentially significant unless mitigated.” Additionally analysis is required, but it must analyze only the effects that remain to be addressed. _____

I find that although the proposed project COULD have a significant effect on the environment, there WILL NOT be a significant effect in this case because all potentially significant effects 1) have been analyzed adequately in an earlier document pursuant to applicable legal standards, and 2) have been avoided or mitigated pursuant to that document, including revisions or mitigation measures that are imposed upon the proposed project. _____

I find that the proposed project may have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT IS REQUIRED. _____

_____ _____

Lee A Michlin
Executive Officer

Date